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ABSTRACT

The effects of natural disasters and the implications which those effects have for community emergency preparedness are discussed. Major topics include: (1) Similarities and differences in types of responses required by a nuclear and natural disasters, (2) The civil defense function in natural disasters, (3) Vulnerability analysis, (4) Warning time for natural disasters, (5) Forms of warning for natural disasters, (6) Taking action following a warning, (7) Two types of planning: contingency and general measures planning, (8) Operational guidance available to local governments, (9) Preparedness actions in order of priority, and (10) Examples of rewards for having planned. Panel discussions and a test are included. (CK)

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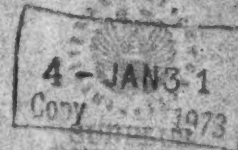
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HS-6.3

CIVIL DEFENSE, U.S.A.

A Programmed Orientation to Civil Defense



UNIT 3

NATURAL DISASTERS



AC014220
STAFF COLLEGE

DEFENSE CIVIL PREPAREDNESS AGENCY • BATTLE CREEK, MICHIGAN

ED 074313

C I V I L D E F E N S E , U . S . A .

UNIT 3

NATURAL DISASTERS

HS-6.3--June 1972

DEPARTMENT OF DEFENSE - DEFENSE CIVIL PREPAREDNESS AGENCY

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INTRODUCTION

Unit 3 Purpose: To discuss the effects of natural disasters and the implications which those effects have for community emergency preparedness.

Although many of the problems and tasks which accompany nuclear disasters are similar to those of a natural disaster, still there are differences in the responses required. This unit examines some of those differences.

The question of vulnerability is considered, including both the long-range and short-range localized analyses which determine a specific community's vulnerability.

Warning is identified as a necessarily unbroken chain. The three elements in this chain are monitoring and detecting the advance signs and signals of an impending disaster; calculating and forecasting the time and place of the event; and transmission of the warning to the officials and the public. If any of these elements are omitted, there will be no warning.

Two types of preparedness plans, the contingency and general preparedness plans are outlined in broad terms, as well as the types of disasters for which these plans would be used. The key steps in a preparedness plan are noted in order of their priority.

NOTE: Rest Break - After Frame 22.

1. In previous units we discussed the civil defense function in time of nuclear disaster. In this unit, we will discuss the civil defense function in other types of disasters: natural and man-made. Without planning and organization of resources, the toll in lives and time required to reconstruct a functioning citizenry will be tremendous following a nuclear attack. But, the same holds true for natural disasters, such as tornadoes or hurricanes. Without a planned response, we can expect greater loss of life and a longer period of interruption of facilities and services. Civil defense is a major function which local communities must perform; it is preparing for and reducing the overall effects of _____ disasters, as well as nuclear disasters.
-

16. The level of analysis at which a local government determines the probable result of a particular type of disaster in its community is known as _____ vulnerability.
-

NATURAL DISASTER PLANNING

31. The local government is the first line of defense against disaster, but organizations and individual citizens within the private sector of the community also assist with assigned emergency tasks. At the time of a disaster, the local government will put into effect the preparedness plan which it has developed. As needed to cope with the problems presented by the disaster, units of the local fire, police, medical, sanitation, utility, and other governmental and private organizations are called into action. Thus, what is sought is a total a community response as is needed in a particular situation. However, the _____ takes the initiative and bears the main burden of disaster preparedness for the community.

1a. natural

16a. localized

31a. local government

2. Think back to what you have learned in previous units concerning the damage caused by and the emergency procedures required in event of nuclear attack. Which of the following natural disasters might require similar civil defense action?

- a. Tornadoes.
- b. Hurricanes.
- c. Floods.
- d. Earthquakes.
- e. Blizzards.

-
17. There is yet another type of vulnerability analysis which can be conducted. The individual citizen can determine his or her own vulnerability in the location where he or she lives. Information, such as the national studies we have been discussing, is available to the average citizen at no cost. You might be interested in running a vulnerability survey of your own to determine what the chances are of a particular natural disaster occurring in the locale where you live. Your Civil Defense Coordinator either conducts localized vulnerability surveys in your community, or he assists with and has information on them. Therefore, for localized information concerning a particular type of natural disaster in your own community, you should contact your _____.

-
32. Local government preparedness planning for major disasters is of two distinct types. The first type, contingency planning, is that done for specific, predictable disaster events in an area known to be vulnerable to a specific type of predictable disaster. For example, contingency plans, based on vulnerability analyses, can be prepared for areas threatened by hurricanes, volcanoes, landslides, and floods. That is, a community knows when its vulnerability to one or more of these types of disasters is high, and since such disasters are of predictable occurrence, the community can plan specific protective actions against their specific effects. This type of planning is known as _____ planning.

2a. You should have checked all of the items in the list.

17a. Civil Defense Coordinator

32a. contingency

3. Although there are similarities in the plans for nuclear and natural disaster, there are also differences. For example, most nuclear disaster plans assume that outside help to the community may not be available--the entire country would be stricken at one time. Would this be the situation with a natural disaster, for example, with a tornado? _____
Why or why not? * _____
-

WARNING TIME

18. The amount of time which might be available for protective action prior to a natural disaster is dependent upon three factors: (1) the advance signs and signals of the developing disaster threat which must be monitored and detected; (2) the actual time and place of the event which must be calculated and forecasted; and (3) the warning which must be transmitted to the officials and the public. If any one of these three factors is omitted or delayed, what will happen to the amount of warning time (or protective action)? * _____
-

-
33. The second type of local government preparedness planning for natural disasters is general measures planning. This is planning for action which would be appropriate in any disaster. Some disasters vary widely in time, place, and intensity of occurrence. Explosions, severe ice or snow storms, and tornadoes are examples of these unpredictable disasters. Since the location at which such disasters will strike cannot be predicted far in advance, local government readiness to cope with them would consist of _____ planning.

3a. No

*Tornadoes are localized and aid can be expected
from nearby communities.

18a. *The warning time will be reduced or will be nonexistent.

33a. general measures.

4. Many nuclear disaster plans do not call for mass evacuation of the citizenry, because in many locations there is simply no place to go where appropriate protection is available. Could the natural disaster plan for a hurricane, for example, call for mass evacuation of the citizens from the area?

Why or why not? *

-
19. Let's examine factor number one first: the advance signs and signals of a developing disaster threat which must be monitored and detected. Some natural disasters provide considerable warning because they develop relatively slowly. One example of this type of development might be flooding. In mountainous or other areas where runoff is rapid and subject to flash floods, forewarning may be only an hour or so at the most. In areas where the terrain will retard the runoff or where flooding results from melting snowpack, the warning time can be days and even weeks. Some disasters, such as earthquakes, give practically no warning. One factor which determines the amount of warning time which can be given is the amount of time during which the *
can be detected and monitored.
-

34. The two distinct types of preparedness planning are _____
planning and _____ planning.

4a. Yes

*Because hurricanes are localized and citizens would be
safe in another area.

19a. *advance signs and signals

34a. contingency
general measures

5. Cleanup action and restoration of facilities following a nuclear disaster might differ from a natural disaster, too. Following a nuclear disaster, what do you know about the time which must transpire before citizens may leave their shelters and begin cleanup operations? *

Would this same time element hold true for a natural disaster such as a tornado or earthquake? _____ Why or why not?

* _____

20. The second factor which determines amount of warning time for a particular disaster is the calculation and forecasting of the actual event. For some types of disasters we are able to predict more readily when and where the disaster will occur. A good example of a readily predictable disaster is the hurricane. Our strategic analysis tells us where and when hurricanes will most likely develop, so that we can be looking in the right direction and for the right signs when they develop. Then, by tracking with radar and actual observance, we can calculate the speed and chart the path of the hurricane as it approaches land. We can then predict with a fair amount of accuracy just when and where it will hit the mainland. Other disasters such as tornadoes and earthquakes are not so easily predicted. In fact, these two disasters are almost impossible to predict. So the second factor in our ability to supply warning time is our ability to *

35. Can you now identify which type of planning would be used to prepare a community for the effects of each of the following? (Label each situation either "contingency" or "general," remembering that your answer should be based on ability to predict in advance where a disaster will strike.)

- _____ a. Tornado.
- _____ b. Transportation accident.
- _____ c. Disaster based on specific vulnerability analyses, such as an earthquake.
- _____ d. Large fire.

5a. *There will be a time period following nuclear attack during which citizens may not leave their shelters due to radioactive fallout.

No.

*There is no radioactive fallout with a tornado or other natural disaster.

20a. * predict and forecast when and where the disaster will strike.

- 35a. a. General
b. General
c. Contingency
d. General

6. In addition, responsibility for detection and warning of local citizens would vary in time of natural disaster from that of nuclear attack. Would the responsibility for detecting and warning of a nuclear attack rest with local government or with the Federal Government? _____. Would the responsibility for detecting and warning of an impending tornado or flash flood rest with local government or with the Federal Government? _____.
-

21. Our third factor in determining amount of warning time concerned transmitting the warning to officials and to the public. Once we have monitored the signs and detected an impending disaster, forecasted the time and place it will strike, we must then provide the citizens with warning of the disaster. Again, a delay in this step reduces the amount of advance warning time accordingly. In review, complete the following statements concerning the three factors which affect timely warning.

- a. First step is to * _____.
b. Second step is to * _____.
c. Third step is to * _____.
-

OPERATIONAL GUIDANCE

36. Disaster Operations, a handbook for local government, is available from the Federal Government. This guide provides local government with information necessary to conduct natural disaster operations. Look at Panel 3. It consists of sample information from the Disaster Operations handbook. Notice that following the "General Information" section for a particular disaster, specific instructions are given as to what to do first, second, third, etc. Read through the pages which comprise Panel 3 to get an idea of the operational guidance which is available to local governments, then continue with the next frame.

6a. Federal

Local

- 21a. a. *monitor and detect the advance signs and signals of the
impending disaster.
- b. *forecast and predict the time and place the event will
occur.
- c. *transmit this information to the officials and the public.
-

36a. Your response was to read all of Panel 3.

7. If a community or citizen knows what steps to take for survival in the event of nuclear attack, this (would/would not) _____ mean that the same plan would always be appropriate for natural disasters.
-

22. If any of these steps is omitted what will happen to the amount of warning time? * _____.
- If any of these steps is delayed what will happen to the amount of warning time? * _____.
-

PRIORITY OF PREPAREDNESS ACTIONS

37. As a general rule, preparedness plans of local governments will include the following actions, in order of their priority:
- a. Preparations for warning and advising the public.
 - b. Preparations for continuation of basic services of government, including direction and control.
 - c. Preparations for restoration of, or substitution for, non-governmental services upon which people normally rely.
 - d. Preparations for continuation of utility services.
 - e. Preparations for expansion of the basic services of government.
- Using the above list, which should be taken care of first in a community following a natural disaster, restoring electrical power to homes or providing medical service? _____
-

7a. would not

22a. *There will be no warning time (or warning).

*The warning time will be reduced accordingly.

THIS IS A GOOD TIME TO TAKE A SHORT BREAK.

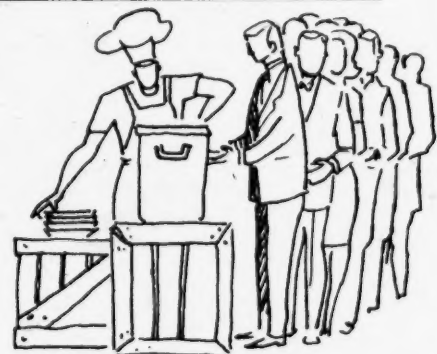
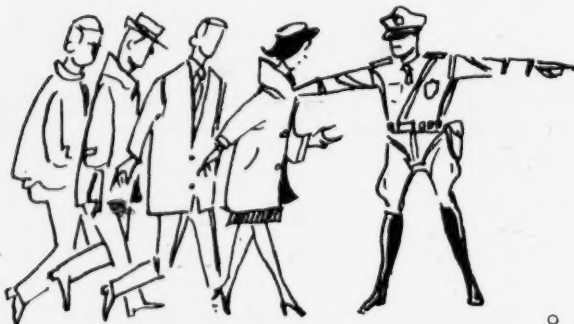
37a. Providing medical service.

8. The civil defense function in local governments in connection with natural disasters, then, is to develop and carry out plans for coping with the disasters. Federal and state governments provide advice and guidance to assist local governments with such plans. This definition of role means that the Federal Government can be expected to play an (advisory/instrumental) _____ role in natural disaster plans and preparedness procedures.
-

FORMS OF WARNING

23. The type of warning given may vary according to the type of disaster anticipated. In an earthquake-prone area, your first warning may be the shaking of the house or the swinging of a chandelier. In a tornado-prone area your only warning may be the freight-train sound of an on-rushing torpado or the visual sighting of the dark funnel cloud. Your Civil Defense Coordinator can supply you with information concerning the type of warning used for disasters which are likely in your area. If enough advance warning is possible, your local government will probably use radio or television to provide warning. In case of a very short warning time, it may direct the use of local outdoor warning devices (siren, horn, loudspeakers, or whatever is used in the community). For every natural disaster, we can expect that the type of warning (will be the same/will vary) _____. To find out what type of warning will be given in your community you should contact your local _____.
-

38. You may use the same list again to determine which of these two items would come first in the disaster preparedness plan: restoration of law and order or supplying the populace with food. _____



8a. advisory

23a. will vary

Civil Defense Coordinator

38a. Restoring law and order.

9. To study the civil defense function in connection with natural disasters, we will take the approach of discussing several questions which most citizens have concerning natural disasters of all types. Those questions are:

- a. How vulnerable am I? What are the chances of a particular natural disaster occurring in the community in which I live?
- b. Will I get any warning? If so, how long before the disaster?
- c. What form will the warning take?
- d. What do I do if I am warned about a particular type of disaster?
- e. What will occur after the disaster?

It is not within the scope of this program to answer all of these questions in detail. Rather, we intend to provide you with general information, directions as to where you can get specific information, and the types of information available.

NO RESPONSE IS REQUIRED TO THIS FRAME. GO ON TO THE NEXT FRAME.

24. If advance warning of an impending disaster is possible, you may get warning from radio and TV or from the community's siren or horns. Would you more likely get warning of an impending flood (not a flash flood) by means of radio and TV or by siren?
-



-
39. What is the first priority in any disaster preparedness plan, whether contingency or general measures? *
-

(You may refer to Frame 37, if necessary.)

9a. NO RESPONSE WAS REQUIRED TO THE LAST FRAME; PLEASE
CONTINUE WITH THE NEXT FRAME.

24a. by radio or TV (or even by the local newspapers)

39a. *Warning and advising the public.

VULNERABILITY ANALYSIS

10. Vulnerability, or the question of whether or not a disaster might occur where you live, can be analyzed at several levels. One is the long-range level. Such long-range analyses of vulnerability are conducted primarily by federal agencies. These analyses determine the risk factors for a particular area based on past history and projections for the future. For example, the National Oceanic and Atmospheric Administration is conducting a vulnerability survey of coastal communities with high risk of hurricanes. Which of the following do you think a survey like this would tell you?
- a. The exact date of the next hurricane.
 - b. The amount of damage the next hurricane will do.
 - c. Whether a particular area is likely to be hit by a hurricane.
 - d. The number of persons who will be killed by the next hurricane.
-

25. Warning of a flash flood or tornado might likely be given by use of community sirens, horns, or some other alerting procedure. What determines whether the warning is by radio or TV or by sirens? *
- _____
- _____
- _____
-

40. The most significant influence on preparedness for a disaster for which only general measures planning can be done is the amount of warning or advance notice that can be expected. In light of this fact, would our plans give the same consideration to disasters that occur with little or no warning as they do to those that occur with much advance warning? _____
- Why or why not? *
- _____
- _____

10a. C is correct.

25a. *The amount of advance warning time available before the
disaster strikes.

40a. No

*If the community has more time to prepare, there are many
additional steps which can be taken to reduce the effects
of an impending disaster.

11. Vulnerability analysis tells us the probability of one area being hit by a disaster as opposed to another area. It does not tell us positively that the area will be hit. It simply tells us that of two or several areas one has more probability than the others of being hit by a particular type of disaster. How does this information help local governments develop disaster preparedness plans? *

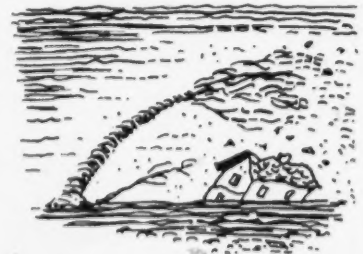
26. In general, the community will use horns, sirens, or other outdoor warning devices to give warning for those impending disasters for which there is (ample advance warning/little or no advance warning)

PLANNING REWARDS

41. Does preparation pay off? Turn to Panel 4. This graph shows the relative increases and decreases in property damage and deaths caused by hurricanes in the United States. Examine this chart closely. Notice that during the time span covered by the chart, property damage has (risen/gone down)

_____ and deaths have (risen/gone down)

_____.



11a. *If the probability is very slight that an area is going to be hit by a particular kind of disaster, the efforts of that community can be directed toward preparation for those types of disasters for which the probability is higher.

26a. little or no advance warning

41a. risen
gone down

12. The National Weather Service maintains a survey of tornado incidence by states. Look at Panel 1 in the back of this book. Of the following states, which one would be most likely to have a tornado strike?

- a. Indiana
- b. Oklahoma
- c. Alaska
- d. Oregon
- e. California



What does the information on this map indicate to the residents of that state insofar as their natural disaster preparedness is concerned? *

27. Most likely, your local government will make use of radio, TV, and sirens, horns, or other alerting devices when an impending disaster gives short warning time. When the sirens or horns sound, this means that the hearer should turn on the radio or TV for specific instructions. A person hearing this signal should immediately *

42. This dramatic decrease in the number of persons killed each year by hurricanes is largely produced by increasingly better disaster _____ plans.

12a. Oklahoma

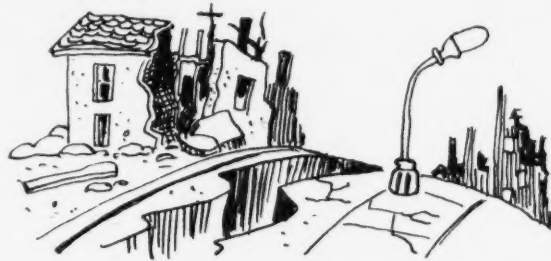
*One of their top priorities should be preparation for natural disasters in the form of tornadoes.

27a. *turn on his radio or TV to see what the impending disaster is and await further instructions. (PROGRAMMER'S NOTE: I hope you didn't say "take immediate shelter." The type of impending disaster will determine to a large extent the action you take. For example, the action taken for an impending tornado is different from that for a flash flood.)

42a. preparedness

13. Look at Panel 2 in the back of this book. This map shows the relative risks of different areas in connection with earthquakes. Which of the following states would be more likely to suffer a natural disaster in the form of an earthquake?

- a. Texas
- b. Washington
- c. Minnesota
- d. New Mexico



What does this information tell you about the natural disaster preparedness plans for this state? * _____

-
28. The method used in your community to alert the public of an impending natural disaster is a decision which is made by your local government officials. You should contact your Civil Defense Coordinator (or mayor, or city manager, as the case may be) for information concerning your community. But, generally speaking, the use of the community outdoor alerting devices usually means a degree of urgency is involved in the warning.

Now consider this situation. A tornado warning--meaning a tornado has been sighted in your area--comes on radio and TV. Then you suddenly hear a siren sounding. You can tell it is part of your community's outdoor warning system. You would probably (be/not be) _____ taking correct action if you immediately went to shelter.

CONCLUDING STATEMENT

43. It has been our intent in this unit to make you aware of the threat of natural disasters. It has also been our intent to introduce you to the nature of the significant planning which must go into a natural disaster plan. (Go on to the next frame.)

13a. Washington

*One of their top priorities should be preparation for
natural disasters in the form of earthquakes.

28a. be

(PROGRAMMER'S NOTE: The best solution is to immediately
take shelter and to take a battery radio into the shelter
with you.)

43a. No response required.

14. One method of evaluating vulnerability which we have discussed is the long-range survey which shows the probability of a particular type of natural disaster occurring in a particular place. Another type of vulnerability analysis is of a localized nature, e.g., if a tornado or other disaster does strike a particular community, what problems is it likely to cause? This type of analysis would most likely be conducted on a (national/local) _____ level by the (federal/local) _____ government.
-

TAKING ACTION FOLLOWING A WARNING

29. The action taken following a specific warning will vary according to the type of impending disaster and the amount of time available before the disaster strikes. The action you would take for an impending tornado, which requires shelter, would not be the same as that for an impending flood, which requires evacuation from the area to higher ground. But, in general, a warning does require some form of _____.
-

44. The bulk of the preparation to meet disasters rests with the local government. The Civil Defense Coordinator, as a local government official, assists local government departments, as well as the private organizations and citizens within his community, to plan for and organize to cope with natural disasters. In this function, he brings to bear that experience which the entire civil defense system has attained in its role of preparing the civilian population to survive the effects of a nuclear attack. (Go on to next frame.)

14a. local

local

29a. action

44a. No response required.

15. One civil defense function of local governments and agencies is to conduct their local vulnerability analysis. This analysis must be conducted as the first step in the development of an overall disaster preparedness plan for the area. And, the local government can call upon national organizations for information concerning (long-range/localized) _____ vulnerability.
-

30. Many good pamphlets and advisory booklets are available at no cost from your local (or state) Civil Defense Office concerning what to do, what action to take, in the event of natural disasters. One such particularly good booklet which covers both nuclear and natural disasters is entitled In Time Of Emergency. This booklet is available (at standard prices/at low cost/at no cost) _____ from your local _____ Office.
-



45. You have now completed Unit 3 of the course. The next unit will consider in more detail the specific requirements which must be met if the nation's citizens are to be warned and protected in disaster situations.

15a. long-range

(Return to the beginning of Unit 3 and continue with Frame 16.)

30a. at no cost

Civil Defense

(PROGRAMMER'S NOTE: In Time of Emergency may have been included in your materials for this course. If so, you already have a copy!)

(Return to the beginning of Unit 3 and continue with Frame 31.)

45a. Turn to Unit 3 Test, page 23.

PANEL 1

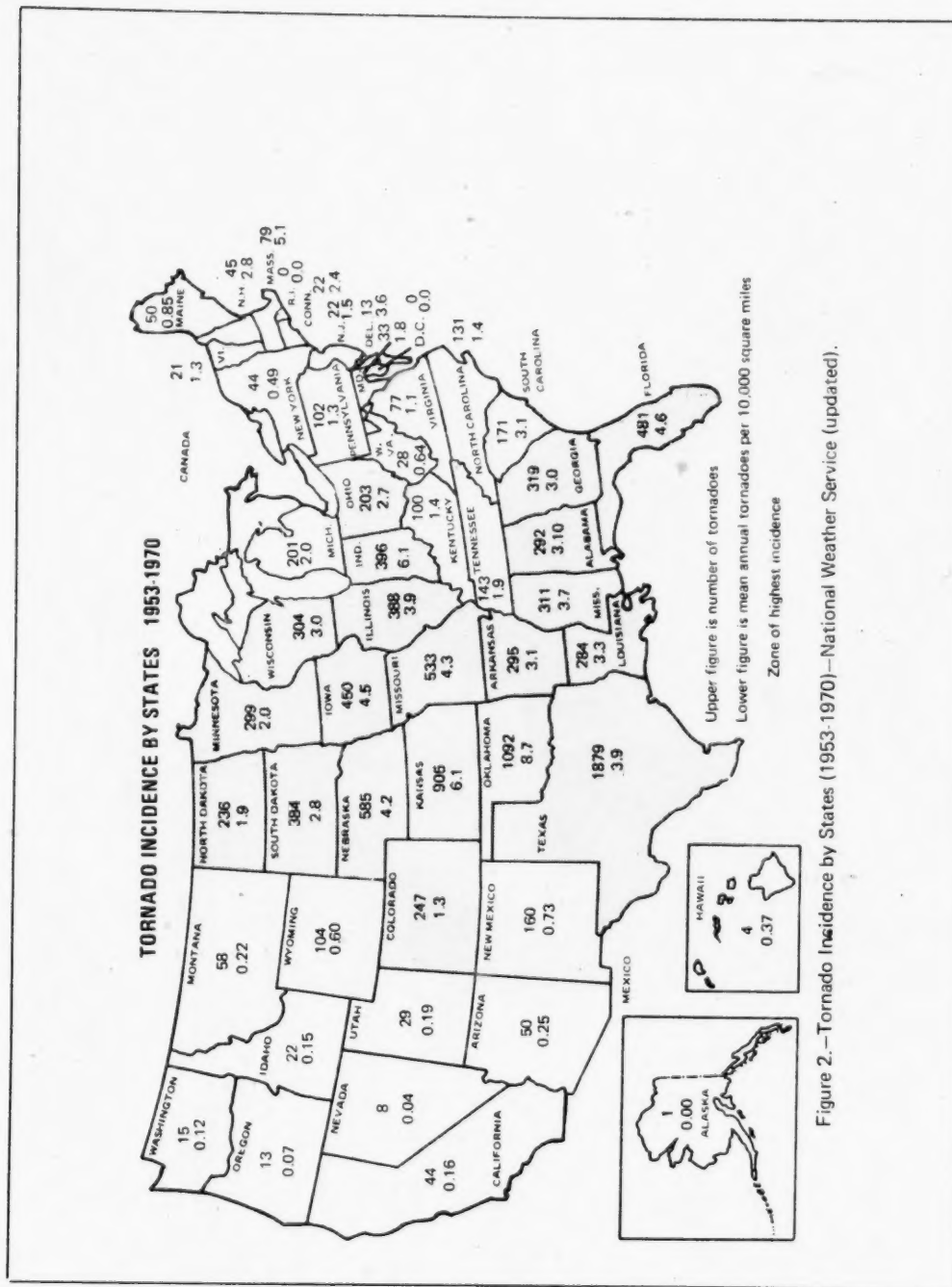
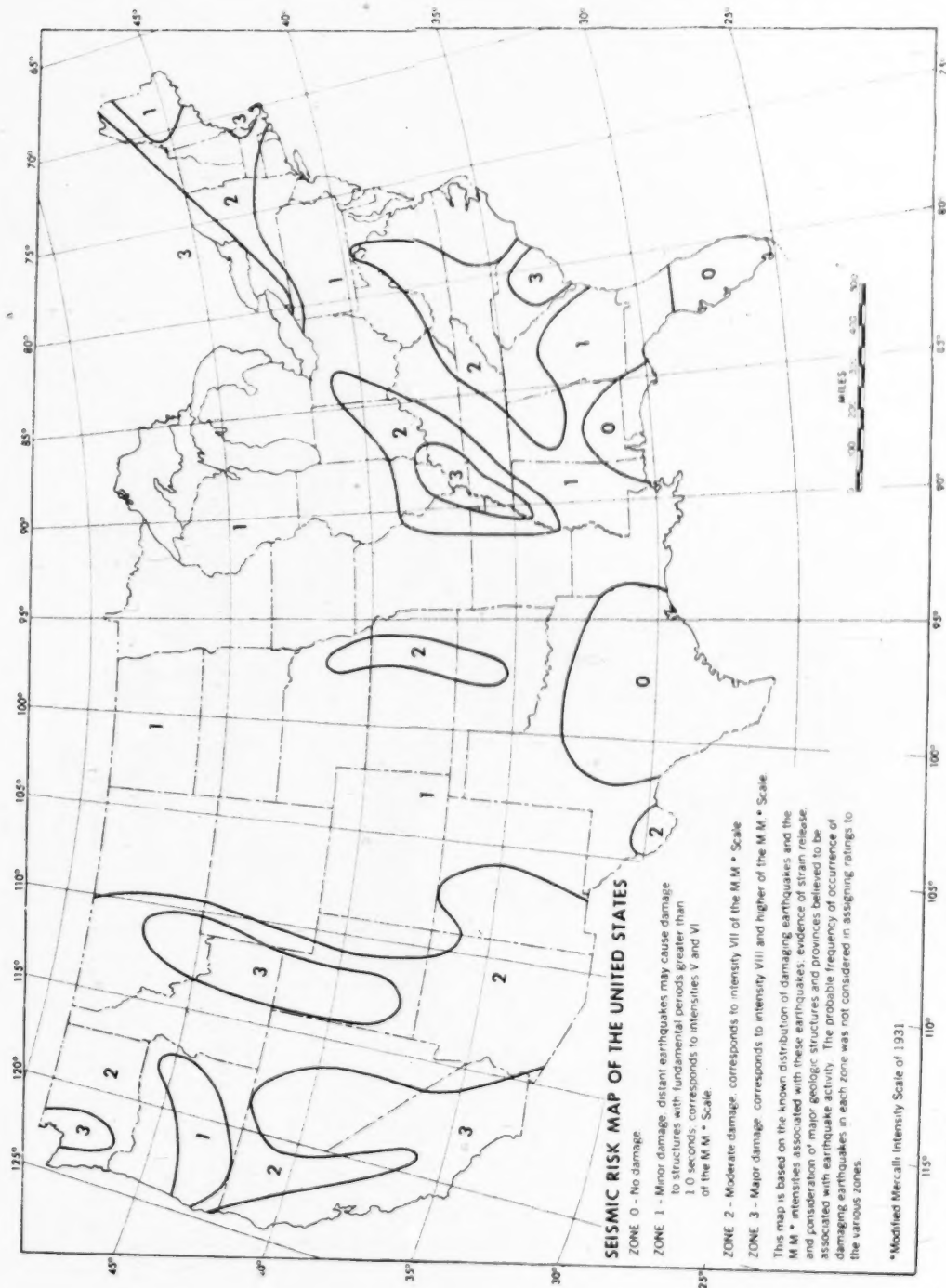


Figure 2.—Tornado Incidence by States (1953-1970)—National Weather Service (updated).

PANEL 2



Seismic Risk Map of the Conterminous United States—after S. T. Algermissen, "Seismic Risk Studies in the United States," *Proceedings of the Fourth World Conference on Earthquake Engineering* (Vol. 1, pp. 19-27), Santiago, Chile, 1969.

PANEL 3

HURRICANES:

EMERGENCY SERVICES ACTIONS

A. General Information

The National Weather Service is responsible for issuing warnings when hurricanes are approaching the United States mainland.

As soon as there are definite indications that a hurricane is forming, even though it is a thousand miles or more from the mainland, the storm is given a name and the Weather Service begins issuing "Advisories." The advisories are issued frequently throughout the day and night and tell where the storm is located, intensity of its winds, and the speed and direction of movement.

If the hurricane moves toward the mainland, "Hurricane Watch" notices are included. The Hurricane Watch does not constitute a warning that hurricane conditions are imminent. Rather, it indicates that the hurricane is close enough so that everyone in the area covered by the "WATCH" should listen for further advisories and be ready to take precautionary action in case "WARNINGS" are issued.

As soon as the forecaster determines that a particular section of the coast will feel the full effects of a hurricane, he issues a "HURRICANE WARNING." Hurricane Warnings specify coastal areas where winds of 74 miles-per-hour or higher are expected to occur. When the warning is issued, all precautions should be taken immediately against the full force of the storm.

B. Upon receipt of an advisory from the Weather Service that a "Hurricane Watch" is in effect, take the following actions:

1. Notify the chief executive and civil defense coordinator who will activate the Emergency Operating Center in accordance with "Executive Leadership Actions for All Major Emergencies."

2. Insure that appropriate information and instructions based on the latest hurricane advisories are broadcast by radio (station identification) and TV (channel identification). For example:

"Radio Station (identify) and Television Channel (identify) will broadcast latest hurricane advisories. Your local government advice and instruction will also be issued over these stations by _____."
(Mayor/CD Coordinator)

PANEL 3 (Continued)

3. Add information from the state civil defense agency on tracking the storm to Step 2, if available.

4. Assess the situation and review preparedness procedures for evacuation and other possible local alternate plans.

5. If possible, determine probable risk area. Initiate reporting of situation to industries, utilities, schools, and other facilities in the probable risk area. Dispatch Emergency Service field personnel (particularly police) to alert exposed settlements and trailer camps to maintain a constant radio watch for further instructions.

6. Provide continuing instructions to the public, such as:

a. Advise people on where to go if they are warned to evacuate. (Attach local listing of hurricane shelters and locations.)

b. Routes to use when area is ordered evacuated. (Provide map of proposed evacuation routes to assist the announcer.)

7. Maintain contact with state civil defense agency for advice and guidance on the developing situation.

8. Have highway and public works departments make preparations for placing emergency directional and detour signs as called for under evacuation and traffic control plans.

C. Upon receipt of a hurricane warning, take the following actions:

1. Place the Emergency Operating Center in full-scale operation, including emergency communications systems, plans and procedures.

2. Step up broadcasts over radio (identify station) and TV (identify channel) to remind public to:

a. Remain calm

b. Remain at home

c. Make preparations for evacuation if ordered to do so

d. Stay tuned in continuously

e. Begin precautionary measures (See accompanying "Suggested Citizen Instructions.")

3. Notify all agencies and individuals on the Hurricane Warning lists.

PANEL 3 (Continued)

4. Advise the Superintendent of Schools to consider cancelling classes for the duration of the emergency.

5. Put the appropriate hurricane emergency plan in operation, depending on the maximum tide height expected which will indicate areas to be evacuated. Alternate plans, developed by local government, should include: Areas to be evacuated; shelter locations for evacuees; feeding and other requirements for taking care of evacuees.

6. Remind appropriate Emergency Service personnel to strategically place equipment, fuel, and other essential supplies outside the anticipated storm area for use after the storm.

7. Check auxiliary generators and other power and lighting equipment. Place reserve EOC supplies and equipment, such as antennas, where they can be obtained following the storm.

8. Place into effect a highway traffic control plan to expedite movement from areas ordered evacuated to hurricane shelters. The plan should include designation of exit routes by evacuees, and provision for broadcasting information to the public.

9. Set up patrols to cordon evacuated areas to prevent fires, looting, and property damage.

10. If the hurricane strikes, commence Search and Rescue and other emergency operations as soon as possible and as required, in accordance with appropriate Action Checklists.

11. After passage of the hurricane, broadcast advice and instruction to the public:

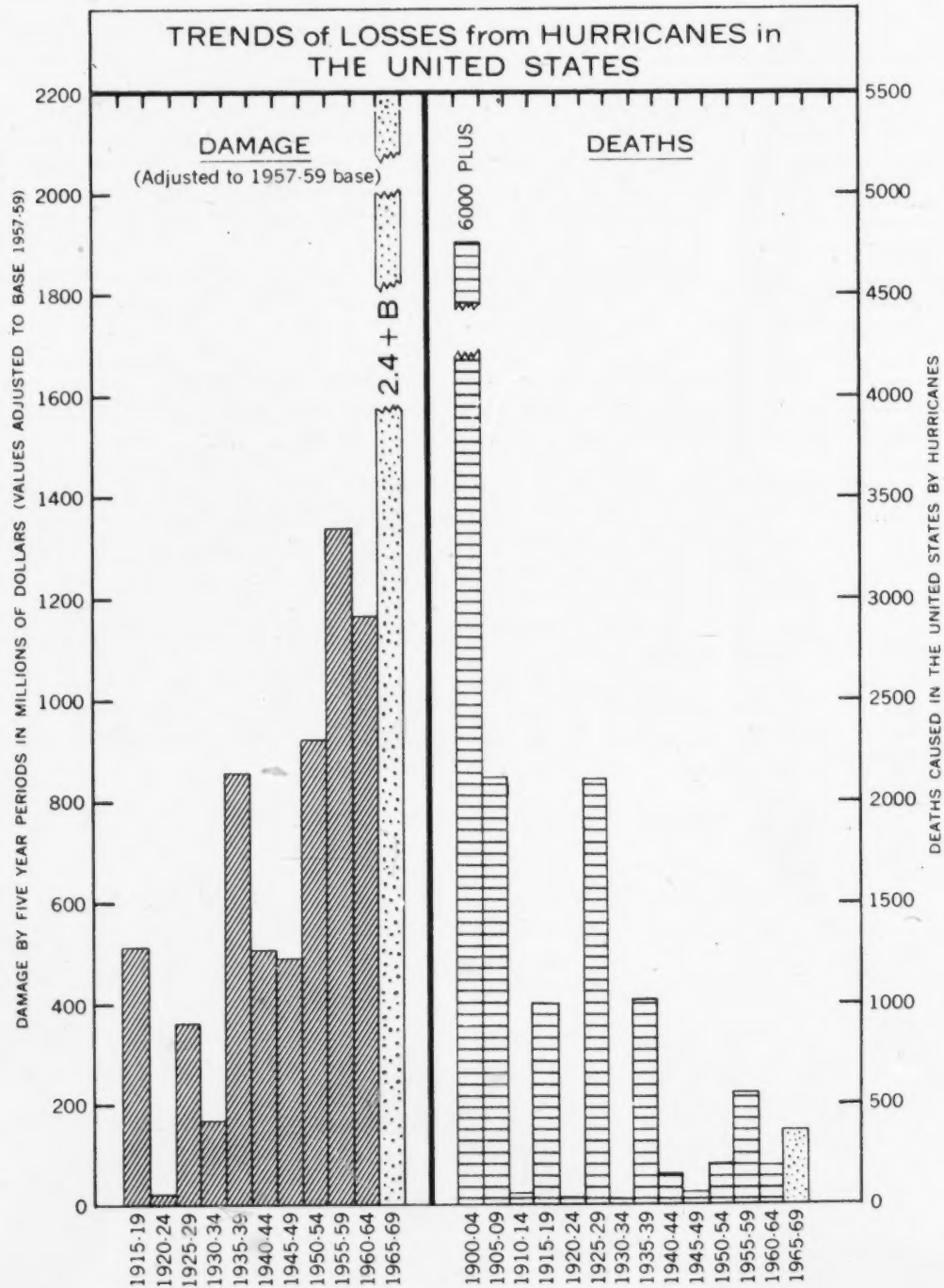
a. that they should remain in shelters until informed by those in charge that they may return to their homes.

b. where assistance may be obtained.

12. As soon as situation permits, resume normal routine, notify Emergency Operating Center, and submit final reports, as required.

NOTE: When a hurricane strikes a community, it may necessitate manpower, equipment, materials, and supplies at the scene of restoration, long after closing the Emergency Operating Center.

PANEL 4



Hurricane Damage and Deaths—from *Project Stormfury*—1970, U.S. Department of Commerce, 1970.

CIVIL DEFENSE, U. S. A.

A Programmed Orientation to Civil Defense

TEST

on

UNIT 3 - NATURAL DISASTERS

INSTRUCTIONS:

Do not look at this test until you have completed Unit 3. When you have completed Unit 3, take this test. Select the one answer for each question which in your opinion is the best answer. Mark the answer on the postcard answer form provided, using a soft lead pencil. Make a heavy mark completely covering the space between the lines of the answer you select. For example, if your answer for the first question were "a," you would mark the answer card as follows:

	a	b	c	d
1.	☒	☐	☐	☐

Please note that your Student Number is on the envelope containing your course materials. BE SURE to enter this Student Number and this Unit Number in the spaces provided on the answer card. When you have marked your answers on the card, mail it to Staff College.

1. Assuming that a community already has a disaster plan for nuclear attack, this means that insofar as natural disaster is concerned:
 - a. the nuclear plan will be adequate.
 - b. a different organization would carry out the natural disaster plan.
 - c. a different plan should be prepared for each.
 - d. natural disasters are unpredictable; therefore, you cannot prepare for them.
2. The responsibility for detection and warning of a natural disaster rests:
 - a. more with the federal government than with local government.
 - b. entirely with the local Civil Defense Coordinator.
 - c. with the local government.
 - d. mainly with citizens.
3. "Long-range vulnerability" analysis is primarily concerned with:
 - a. nuclear attack.
 - b. predicting trends in natural disaster areas.
 - c. determining what utilities and medical help would be cut off in the event of natural disaster.
 - d. checking the health of the general population of an area.
4. Vulnerability analysis helps the local government:
 - a. determine priorities for the types of disaster which must be prepared for.
 - b. determine how many persons would be killed or injured in the event of nuclear attack.
 - c. determine how many persons would be killed or injured in the event of a natural disaster.
 - d. provide for continuous communications facilities in the event of nuclear attack.

5. The primary emphasis during the local community's conduct of the localized vulnerability analysis should be placed on:
 - a. weather trends.
 - b. what localized damage is likely to be caused by a particular type of disaster.
 - c. the state of health of the local citizens.
 - d. nuclear fallout shelter design.
6. The three factors which directly influence the amount of warning time the citizens will have prior to a particular disaster are:
 - a. time, distance, and shielding.
 - b. monitoring and detecting of the advanced signs; forecasting of the event; and communications to the officials and public.
 - c. vulnerability analysis; localized vulnerability analysis; and communications.
 - d. the type of warning devices used; the size of the local radio transmitter; and the number of people in the communications chain.
7. For which of the following would the warning time be most likely to be the shortest?
 - a. Earthquake.
 - b. Flood.
 - c. Hurricane.
 - d. Blizzard.
8. Preparedness planning for major disasters is of two types. Those two types are:
 - a. vulnerability analysis and localized vulnerability analysis.
 - b. long-range and localized.
 - c. contingency and general.
 - d. natural and man-made.

9. The number one priority for community preparedness plans should be preparation for:
 - a. expansion of the basic services of the government.
 - b. continuation of the basic services of the government.
 - c. continuation of utility services.
 - d. warning and advising the public.
10. Concerning the effectiveness of the disaster preparedness program for hurricanes, experience has shown us that:
 - a. both the dollar amount of property damage and loss of lives have been reduced.
 - b. both the dollar amount of property damage and loss of lives have been increased.
 - c. the dollar amount of property damage has increased, while the loss of lives has decreased.
 - d. the dollar amount of property damage has decreased, while the loss of lives has increased.

